

## Message Text

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FOR US REP ICAO

E.O. 11652: N/A

TAGS: EAIR, ICAO, PORG

SUBJECT: ICAO AIR NAVIGATION COMMISSION CONSIDERATION OF  
MLS

FOLLOWING IS NEW US PAPER RESPONDING TO AWOP-WP/331 WHICH  
USREP MAY REQUEST SECRETARIAT TO DISTRIBUTE TO AIR NAVIGATION  
COMMISSION:

INTRODUCTION. THE 7TH AIR NAVIGATION CONFERENCE DEVELOPED  
THE ICAO PROGRAM FOR THE SELECTION OF A NEW STANDARD PRE-  
CISION APPROACH AND LANDING GUIDANCE SYSTEM. STAGE I OF  
THAT PROGRAM WAS THE ASSESSMENT OF PROPOSED SYSTEMS BY A  
DESIGNATED BODY.

THE ALL WEATHER OPERATIONS PANEL (AWOP), THE BODY OF  
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EXPERTS DESIGNATED TO ASSESS THE PROPOSALS, PREPARED A  
COMPREHENSIVE WORK PROGRAM INCLUDING THE GROUND RULES IT  
WOULD USE FOR ASSESSMENT OF PROPOSALS. THE PANEL FOLLOWED  
ITS PROGRAM AND GROUND RULES CAREFULLY, COMPLETING ITS WORK  
WITH THE ISSUANCE OF THE REPORT OF THE SIXTH MEETING.  
STAGE I OF THE PROGRAM DEFINED BY THE 7TH ANC IS COMPLETED.

IN THE PROCESS OF FORMULATING A FINAL RECOMMENDATION AT THE VERY END OF THE PANEL'S WORK PROGRAM, CRITICISM AROSE

AROSE OVER PORTIONS OF THE INFORMATION PRESENTED TO THE PANEL. SUBSEQUENTLY, IN AWOP WP/331, THE UK PANEL MEMBER OFFERED HIS VIEW (NOW BEING CONSIDERED BY THE ANC) THAT A PARTICULAR DETAIL, THE PLACEMENT OF AIRPORT BUILDINGS AT BRUSSELS INTERNATIONAL AIRPORT, WAS SUFFICIENTLY IMPORTANT TO REJECT THE OUTCOME OF THE PANEL'S EXHAUSTIVE INVESTIGATION AND IT IS OFFERED AS JUSTIFICATION FOR REVISING THE ICAO PROGRAM AND EXTENDING THE SCHEDULE TO CONDUCT MORE FIELD TESTS OF THE PROPOSED SYSTEMS. SUCH CRITICISM WAS ADDRESSED BY THE PANEL AND AS REFLECTED IN THE REPORT, DOES NOT ALTER THE CONCLUSIONS REACHED.

INITIATION OF STAGE II (WHICH THE 7TH ANC AGREED "SHOULD FOLLOW AS QUICKLY AS POSSIBLE THE CONCLUSION OF STAGE I") MUST PROCEED. THE PROGRAM SHOULD NOT BE DELAYED BY ARGUMENTS OVER IRRELEVANT DETAILS WHICH DO NOT AFFECT THE PRINCIPLES UNDERLYING CONCLUSIONS OF THE PANEL.

DISCUSSION. A CRITICISM HAS BEEN MADE THAT THE AWOP, IN ITS CONSIDERATION OF A PARTICULAR WORKING PAPER AT THE SIXTH MEETING, WAS MISLED BY THE RESULTS OF A COMPUTER STUDY BASED ON THE ARRANGEMENT OF BUILDINGS AT THE BRUSSELS INTERNATIONAL AIRPORT. THE COMPUTER STUDY CONDUCTED BY LINCOLN LABORATORY WAS FIRST REPORTED TO THE PANEL MEMBERS IN NOVEMBER 1976, AT THE TIME WHEN CHANGES TO THE DMLS PROPOSAL NECESSITATED RE-EXAMINATION. THE STUDY WAS BASED UNCLASSIFIED

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ON TWO SOURCES OF INFORMATION: (1) TEST DATA FOR THE DOPPLER SYSTEM SUBMITTED BY THE UK SHOWING THE ERROR CHARACTERISTICS OF DMLS AS IT WAS REDESIGNED IN NOVEMBER 1976 (FIGURE 1), AND (2) AN OFFICIAL CHART OF THE BRUSSELS INTERNATIONAL AIRPORT DEPICTING THE ARRANGEMENT OF BUILDINGS ON THE AIRPORT (FIGURE 2). THE COMPUTER STUDY SHOWED THAT TYPICAL HANGARS AND AIRPORT BUILDINGS SUCH AS THOSE ILLUSTRATED ON THE BRUSSELS AIP CHART CAN GENERATE OPERATIONALLY SIGNIFICANT ERRORS WITH THE PROPOSED DMLS TECHNIQUE. IT SHOWED THAT SUCH ERRORS ARE NOT PRESENT IN THE TRSB TECHNIQUE. AS SUCH, THE COMPUTER STUDY WAS ONE OF A SERIES OF SUCH COMPARISONS CONSIDERED BY THE PANEL OVER THE PAST YEAR. SUBSEQUENTLY, IT WAS DETERMINED THAT ONE BUILDING DEPICTED ON THE CHART DOES NOT EXIST. HOWEVER, THIS SHOULD NOT BE USED TO IMPLY THAT A BASIC WEAKNESS IN THE DMLS IS NOT PRESENT.

THE CONCLUSIONS DRAWN BY THE PANEL FROM THE OVERALL CONSIDERATION OF THESE MATTERS, STEM FROM A THOROUGH UNDER-

STANDING OF THE PROPOSED SYSTEMS. THE PANEL'S CONCLUSION WAS THAT "OPERATIONALLY, SIGNIFICANT DMLS AZIMUTH ERRORS OCCASIONALLY CAN RESULT FROM REFERENCE SCALLOPING WITH POSSIBLE AIRPORT BUILDING ORIENTATIONS (APPENDIX PARAGRAPH

6.1.3.2.11)."

IT IS NOT RELEVANT TO ARGUE THAT THE LATEST AIP CHARTS (WHICH BECAME AVAILABLE AFTER THE INITIAL SIMULATION) OF BRUSSELS INTERNATIONAL AIRPORT NO LONGER DEPICT ONE OF THE BUILDINGS (ALTHOUGH THE FEB 1977 JEPPESEN CHARTS STILL SHOW THAT BUILDING). IT IS RELEVANT, HOWEVER, TO RECOGNIZE THE PRINCIPLE THAT PERFORMANCE OF DMLS CAN BE AFFECTED BY THE ORIENTATION OF BUILDINGS ON AN AIRPORT, AND IT IS CLEAR THAT THE MAJORITY OF THE PANEL MEMBERS RECOGNIZED THIS

PRINCIPLE. (ALTHOUGH THERE WAS A CONSCIENTIOUS EFFORT BY UNCLASSIFIED

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ALL INVOLVED TO ACHIEVE REALISM IN THESE SCENARIOS, THE CONCLUSION DOES NOT DEPEND ON THIS ASPECT BUT RATHER ON THE COMPARATIVE PRINCIPLE OF SYSTEM OPERATION.) THE CONCLUSION IN THIS CASE SIMPLY FOLLOWS FROM A SHORTCOMING IN THE DOPPLER TECHNIQUE WHICH IS NOT BEING CONTESTED.

INSOFAR AS POSSIBLE, THE NEW LANDING GUIDANCE SYSTEM MUST NOT BE SUSCEPTIBLE TO ERRORS CREATED BY THE AIRPORT ENVIRONMENT; AND NEW AIRPORTS AND NEW CONSTRUCTION AT AIRPORTS SHOULD NOT BE LIMITED BY THE SENSITIVE CHARACTER OF THE LANDING GUIDANCE SYSTEM. (OR.PARAGRAPH 1.2.3, 4.2.D, AND 15.4) IN ORDER TO ASSESS THE CAPABILITY OF A PROPOSED SYSTEM TO SATISFY THIS REQUIREMENT, IT IS NECESSARY TO ANALYZE THE SENSITIVITY OF A SYSTEM TO THE SITUATIONS WHICH MAY BE ENCOUNTERED IN THE FUTURE. THIS IS WHAT THE PANEL CONSIDERED AND IT DID SO QUITE PROPERLY.

THOSE WHO CRITICIZE THE PANEL'S WORK WOULD REQUIRE THAT THE PANEL'S CONCLUSIONS BE VALIDATED BY ADDITIONAL FIELD TESTS, BUT ADDITIONAL FIELD TESTS AT ONE OR TWO SPECIFIC AIRPORTS CANNOT YIELD INFORMATION ON PERFORMANCE AT ALL POSSIBLE FUTURE INSTALLATIONS. FURTHER, THE PANEL'S REPORT ACKNOWLEDGES THAT OVERALL MULTIPATH PERFORMANCE COULD NOT BE ASSESSED BY TESTING A SYSTEM IN ONE (OR A FEW) SITUATIONS, AND IT WAS FOR THIS REASON THAT COMPUTER SIMULATIONS WERE USED AS THE PRIMARY ASSESSMENT TOOL (PARAGRAPH 6.1.3.1) TO FULLY EXERCISE THE TECHNIQUES.

IN EXAMINING THE REPORT OF THE PANEL, IT IS NOTED THAT CRITERIA WERE ADOPTED FOR THE SUPPORTING RATIONALE TO BE USED IN THE ASSESSMENT REPORT (PARAGRAPH 2.1.3). THE

INDIVIDUAL ASSESSMENTS OF THOSE PANEL MEMBERS WHO STATED THEIR PREFERENCE FOR THE TRSB/INTERSCAN SYSTEM COMPLIED WITH THESE CRITERIA. THEY IDENTIFIED SEVERAL FACTORS WHICH CONTRIBUTED TO THEIR PREFERENCE FOR TRSB/INTERSCAN. THEIR REASONS INCLUDED MATURITY AND LOW RISK, COST EFFECTIVENESS, UNCLASSIFIED

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SIMPLICITY, AND OTHER FACTORS IN ADDITION TO PERFORMANCE AT

DIFFERENT SITES. THUS, IT IS APPARENT THAT ADDITIONAL FIELD TESTS COULD NOT CONTRIBUTE NEW EVIDENCE SUFFICIENT TO ALTER THE RECOMMENDATION WHICH WAS SUPPORTED BY THE MAJORITY OF THE PANEL, BUT WOULD ONLY SERVE TO DELAY THE PROCESS UNNECESSARILY.

AS REFLECTED IN THE ASSESSMENT REPORT, THE PANEL'S WORK

;AS EXTREMELY COMPREHENSIVE AND INCLUDED "THE ASSISTANCE OF AN UNUSUALLY LARGE NUMBER OF ADVISORS, INCLUDING SPECIALISTS AND EXPERTS IN ALL THE ASSOCIATED DISCIPLINES SO THAT ITS WORK REPRESENTS EXPERTISE FAR IN EXCESS OF THAT POSSIBLE BY TEN PANEL MEMBERS, HOWEVER, QUALIFIED" (APPENDIX PARAGRAPH 2.1.2). THE PANEL MONITORED AND HAD ACCESS TO STATES' DEVELOPMENT PROGRAMS OVER A PERIOD OF FIVE YEARS AND ITS FINAL COMPARATIVE ASSESSMENT TOOK MORE THAN A YEAR. IN CONCLUSION, "THE LARGEST GROUP OF MEMBERS BELIEVED THAT THE TESTING AND SIMULATIONS CARRIED OUT WERE MORE THAN ADEQUATE TO SERVE AS THE BASIS FOR OBJECTIVE CONCLUSIONS" (APPENDIX PARAGRAPH 7.1.3.C); AND SEVEN OUT OF EIGHT MEMBERS AGREED THAT THEY COULD RECOMMEND THE SELECTION OF A SYSTEM (APPENDIX PARAGRAPH 7.1.4.A). IT WOULD BE REGRETTABLE INDEED IF THIS EXTENSIVE PROGRAM WERE TO BE UNDONE THROUGH UNDUE ATTENTION TO MINOR DETAILS AND A QUEST FOR UNNECESSARY REFINEMENTS OF THE ASSESSMENT EFFORT.

CONCLUSIONS. UNDER THE CIRCUMSTANCES, AS OUTLINED ABOVE, IT IS CONSIDERED THAT IT WOULD BE INAPPROPRIATE TO REOPEN OR EXTEND THE ASSESSMENT OF PROPOSALS FOR A NEW APPROACH AND LANDING GUIDANCE SYSTEM, AND IT WOULD BE INAPPROPRIATE FOR THE AIR NAVIGATION COMMISSION OR ANY OTHER BODY TO RE-EXAMINE TECHNICAL DETAILS ALREADY ASSESSED AND FULLY DEALT WITH BY THE PANEL.

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PROPOSED ACTION. THE COMMISSION IS INVITED TO APPROVE  
RECOMMENDATION 2/1 AND 2/2 OF THE ALL WEATHER OPERATIONS  
PANEL AND TO RECOMMEND TO THE COUNCIL THAT IT CONVENE AN

ALL WEATHER OPERATIONS DIVISIONAL MEETING AT THE EARLIEST  
POSSIBLE DATE. CHRISTOPHER

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## Message Attributes

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